

One Thing at a Time: Investigating the Impact of Increased Cognitive Demand on Semantic Prediction in Older Adults with and without Hearing Impairment

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Abstract

Prediction is essential in language processing and is often studied as an isolated task. However, in real life, listening often occurs alongside other cognitively demanding activities. We investigated how cognitive demand affects prediction in older adults and whether hearing impairment impacts this process. Eighty-four older adults with hearing impairment (HI) or normal hearing (NH), matched in working memory scores, participated in a visual world paradigm study with semantically predictable and unpredictable sentences. The experiment featured two conditions: listening without a memory task and listening while concurrently retaining a three-item visuo-spatial memory load to simulate competing cognitive demands. Divergence point analyses showed that memory load delayed prediction timing in NH participants, and an interaction revealed differences occurring with hearing loss. As prediction timing was impacted both by load and hearing loss, our work suggests that prediction requires executive resources.